

CLAIMS

What is claimed is:

1. A method for controlling transmission power levels of signals in a spread spectrum time division duplex (TDD) communication system, the signals having frames with time slots for providing a communication, the method comprising:

- (a) a first communication station transmitting a first signal having a transmission power level in a first time slot;
- (b) a second communication station receiving the first communication and measuring a plurality of signal quality parameters of the first communication;
- (c) determining a slot assignment rank for the first communication station based on the plurality of signal quality parameters; and
- (d) assigning a second time slot to the first communication station for subsequent communications.

2. The method of claim 1 wherein the plurality of signal quality parameters include at least one of the following values: a weighted signal interference information value, a weighted code usage estimation value and a weighted fading loss estimation value.

3. The method of claim 2 further comprising:

- (e) prioritizing a plurality of wireless transmit/receive units (WTRUs) currently communicating via a communication network; and
- (f) assigning each of said plurality of WTRUs a slot assignment based upon the slot assignment rank.

4. The method of claim 1 wherein the first communication station is a base station (BS) and the second communication station is a wireless transmit/receive unit (WTRU).

5. The method of claim 1 wherein the first communication station is a wireless transmit/receive unit (WTRU) and the second communication station is a base station (BS).

6. The method of claim 1 wherein the plurality of signal quality parameters include at least one of the following values: a block error rate (BLER) value and a signal to interference ratio (SIR) value.

7. A method for controlling transmission power levels of signals in a spread spectrum time division duplex (TDD) communication system, the signals having frames with time slots for providing a communication, the method comprising:

(a) a first communication station transmitting a first signal having a transmission power level in a first time slot;

(b) a second communication station receiving the first communication and measuring a plurality of signal quality parameters of the first communication, the parameters including at least one of a block error rate (BLER) value and a signal to interference ratio (SIR) value;

(c) determining a slot assignment rank for the first communication station based on the parameters; and

(d) assigning a second time slot to the first communication station for subsequent communications.

8. The method of claim 7 further comprising:

(e) prioritizing a plurality of wireless transmit/receive units (WTRUs) currently communicating via a communication network; and

(f) assigning each of said plurality of WTRUs a slot assignment based upon the slot assignment rank.

9. The method of claim 7 wherein the first communication station is a base station (BS) and the second communication station is a wireless transmit/receive unit (WTRU).

10. The method of claim 7 wherein the first communication station is a wireless transmit/receive unit (WTRU) and the second communication station is a base station (BS).

11. A method for controlling transmission power levels of signals in a spread spectrum time division duplex (TDD) communication system, the signals having frames with time slots for providing a communication, the method comprising:

(a) a first communication station transmitting a first signal having a transmission power level in a first time slot;

(b) a second communication station receiving the first communication and measuring a plurality of signal quality parameters of the first communication, the parameters including at least one of a weighted signal interference information value, a weighted code usage estimation value and a weighted fading loss estimation value;

(c) determining a slot assignment rank for the first communication station based on the parameters; and

(d) assigning a second time slot to the first communication station for subsequent communications.

12. The method of claim 11 further comprising:

(e) prioritizing a plurality of wireless transmit/receive units (WTRUs) currently communicating via a communication network; and

(f) assigning each of said plurality of WTRUs a slot assignment based upon the slot assignment rank.

13. The method of claim 11 wherein the first communication station is a base station (BS) and the second communication station is a wireless transmit/receive unit (WTRU).

14. The method of claim 11 wherein the first communication station is a wireless transmit/receive unit (WTRU) and the second communication station is a base station (BS).

15. In a spread spectrum time division duplex (TDD) communication system, a base station (BS) for controlling transmission power levels of signals, the signals having frames with time slots for providing a communication, the base station comprising:

(a) means for receiving, in a first time slot, a first communication having a transmit power level;

(b) means for measuring a plurality of signal quality parameters of the first communication;

(c) means for assigning a second time slot for transmission of a second communication based on the plurality of signal quality parameters; and

(d) means for transmitting the second communication in the second time slot.

16. In a spread spectrum time division duplex (TDD) communication system, a base station (BS) for controlling transmission power levels of signals, the signals having frames with time slots for providing a communication, the base station comprising:

(a) means for receiving, in a first time slot, a first communication having a transmit power level;

(b) means for measuring a plurality of signal quality parameters of the first communication, the parameters including at least one of a block error rate (BLER) value and a signal to interference ratio (SIR) value;

- (c) means for assigning a second time slot for transmission of a second communication based on the plurality of signal quality parameters; and
- (d) means for transmitting the second communication in the second time slot.

17. In a spread spectrum time division duplex (TDD) communication system, a base station (BS) for controlling transmission power levels of signals, the signals having frames with time slots for providing a communication, the base station comprising:

- (a) means for receiving, in a first time slot, a first communication having a transmit power level;
- (b) means for measuring a plurality of signal quality parameters of the first communication, the parameters including at least one of a weighted signal interference information value, a weighted code usage estimation value and a weighted fading loss estimation value;
- (c) means for assigning a second time slot for transmission of a second communication based on the plurality of signal quality parameters; and
- (d) means for transmitting the second communication in the second time slot.

18. In a spread spectrum time division duplex (TDD) communication system, a wireless transmit/receive unit (WTRU) for controlling transmission power levels of signals, the signals having frames with time slots for providing a communication, the base station comprising:

- (a) means for receiving, in a first time slot, a first communication having a transmit power level;
- (b) means for measuring a plurality of signal quality parameters of the first communication;
- (c) means for assigning a second time slot for transmission of a second communication based on the plurality of signal quality parameters; and
- (d) means for transmitting the second communication in the second time slot.

19. In a spread spectrum time division duplex (TDD) communication system, a wireless transmit/receive unit (WTRU) for controlling transmission power levels of signals, the signals having frames with time slots for providing a communication, the base station comprising:

- (a) means for receiving, in a first time slot, a first communication having a transmit power level;
- (b) means for measuring a plurality of signal quality parameters of the first communication, the parameters including at least one of a block error rate (BLER) value and a signal to interference ratio (SIR) value;
- (c) means for assigning a second time slot for transmission of a second communication based on the plurality of signal quality parameters; and
- (d) means for transmitting the second communication in the second time slot.

20. In a spread spectrum time division duplex (TDD) communication system, a wireless transmit/receive unit (WTRU) for controlling transmission power levels of signals, the signals having frames with time slots for providing a communication, the base station comprising:

- (a) means for receiving, in a first time slot, a first communication having a transmit power level;
- (b) means for measuring a plurality of signal quality parameters of the first communication, the parameters including at least one of a weighted signal interference information value, a weighted code usage estimation value and a weighted fading loss estimation value;
- (c) means for assigning a second time slot for transmission of a second communication based on the plurality of signal quality parameters; and
- (d) means for transmitting the second communication in the second time slot.

21. An integrated circuit (IC) for controlling transmission power levels of signals in a spread spectrum time division duplex (TDD) communication system, the signals having frames with time slots for providing a communication, the IC comprising:

- (a) means for receiving, in a first time slot, a first communication having a transmit power level;
- (b) means for measuring a plurality of signal quality parameters of the first communication;
- (c) means for assigning a second time slot for transmission of a second communication based on the plurality of signal quality parameters; and
- (d) means for transmitting the second communication in the second time slot.

22. An integrated circuit (IC) for controlling transmission power levels of signals in a spread spectrum time division duplex (TDD) communication system, the signals having frames with time slots for providing a communication, the IC comprising:

- (a) means for receiving, in a first time slot, a first communication having a transmit power level;
- (b) means for measuring a plurality of signal quality parameters of the first communication, the parameters including at least one of a block error rate (BLER) value and a signal to interference ratio (SIR) value;
- (c) means for assigning a second time slot for transmission of a second communication based on the plurality of signal quality parameters; and
- (d) means for transmitting the second communication in the second time slot.

23. An integrated circuit (IC) for controlling transmission power levels of signals in a spread spectrum time division duplex (TDD) communication system, the signals having frames with time slots for providing a communication, the IC comprising:

- (a) means for receiving, in a first time slot, a first communication having a transmit power level;
- (b) means for measuring a plurality of signal quality parameters of the first communication, the parameters including at least one of a weighted signal interference information value, a weighted code usage estimation value and a weighted fading loss estimation value;
- (c) means for assigning a second time slot for transmission of a second communication based on the plurality of signal quality parameters; and
- (d) means for transmitting the second communication in the second time slot.